ARTIKEL

GOVERNMENT GOVERNANCE IN THE INDUSTRIAL REVOLUTION ERA 4.0

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Abstract

The concept of Industry 4.0 is one of the topics discussed a lot for researchers and academic practitioners. This article presents and discusses the opportunities and challenges of Revolution Industry 4.0 in governance in Indonesia. The era of Industrial Revolution 4.0 brought the consequence of increasing demands for accountability and transparency of government organizations and high and fast responsiveness, this brought about a change in the organizational design paradigm. Therefore, government organizations must carry out major reforms to be able to successfully carry out their duties and functions in the current era of the Industrial Revolution 4.0. The 4.0 industrial revolution not only brings great benefits but also challenges.

Keywords: Governance, Fourth Industrial Revolution, Indonesia.

A. INTRODUCTION

Industrial Revolution 4.0 as a development of modern civilization we have felt its impact on various aspects of life, disruptive technology penetration, making change faster, as a consequence of the phenomenon of the Internet of Things (IoT), big data, automation, robotics, cloud computing and intelligence artificial (Artificial Intelligence) (Cahyono, 2018).

Today the debate about Industry 4.0 and its global impact is growing rapidly due to intense discussions about digitalization, the Internet, and intelligent knowledge and systems (Moessner, et al., 2013; Friess & Ibanez, 2014; Vermesan et al., 2014;). This debate is driven by uncertainty about the best way to exploit the rapid pace of technological innovation to improve various aspects of human life.

The disruption phenomenon that characterizes the development of the Industrial Revolution 4.0, with the support of rapid technological advances, will lead us to the conditions of the transition of the technological revolution that

will fundamentally change the way life, work, and organizational relations relate to one another. The Consequences of the Industrial Revolution 4.0 make the transformation of government organizations a necessity in various scales of scope and complexity. This transformation of government organizations is a keyword that must continue to be sought as an instrument for government officials to be responsive to change.

The term "Industry 4.0" originated in 2011 at the Hanover Fair in Germany as a strategy to reduce increased competition from abroad and to distinguish German and European Union industries from other international markets (Pascall, 2017; Morrar, et al., 2017). Industry 4.0 was announced a priori because the real events had not yet occurred and were still in the form of ideas (Drath and Horch, 2014). In Indonesia, the Industrial Revolution 4.0 began with the launching of "Making Indonesia 4.0" by President Joko Widodo at the Indonesia Industrial Summit in 2018, the program as part of a national industrial strategy in the Industrial Revolution 4.0 which covered various fields, one of which was a field of governance.

Drath and Horch (2014) argue that the challenge faced by a country when implementing Industry 4.0 is the emergence of resistance to changes in demographics and social aspects, instability in political conditions, limited resources, natural disaster risks and demands for the application of environmentally friendly technologies. In general, there are five major challenges that will be faced, namely aspects of knowledge, technology, economics, social and politics (Zhou, et al., 2015). In order to answer the challenge, a large, planned and strategic effort is needed from the side of the regulator (government), academics and practitioners.

In the development of the Industrial Revolution 4.0, the application of information technology (e-government) was a necessity for state administrators (government). To support the realization of e-government, the government has ratified regulations and laws relating to information technology. The legislation is Law No. 11 of 2008 concerning Information and Electronic Transactions (ITE

Law), Minister of Administrative Reform and Bureaucratic Reform (MenpanRB) Regulation No. 06 of 2011 concerning Electronic Service Manuscripts (TNDE) and Presidential Regulation of the Republic of Indonesia No. 95 of 2018 concerning Electronic-Based Government Systems (SPBE).

With the issuance of these regulations and laws, especially Presidential Regulation No. 95 of 2018 concerning SPBE, this proves that at present our government is serious in realizing effective and efficient governance by utilizing information technology (e-government) as a whole and interconnected in a government administration system and in the implementation of public services in an agency government. The point is that the public service process from the state (government) organizers to the community is more effective, efficient and responsive (faster response).

In addition, the use of information technology in governance (e-government) is also one way to realize bureaucratic reform in improving the quality of public services to be more transparent, effective and efficient. Besides that, in relation to the industrial revolution 4.0, the use of information technology in every element in governance is also one of the supports for the state civil apparatus (ASN) to be more qualified, innovative, competitive, effective and efficient in carrying out its duties. Therefore innovation is needed that is able to support and implement information technology in governance (e-government) easily, effectively and efficiently as part of the era of the Industrial Revolution 4.0.

The various phenomena of technological progress and their impact are evident in the urgency of the transformation of government organizations to answer the demands of public accountability and increased transparency today due to the development of the Industrial Revolution 4.0 era. Therefore, government organizations must carry out major reforms to be able to successfully carry out their duties and functions in the current era of the Industrial Revolution 4.0.

The Industrial Revolution 4.0 brought the consequence of increasing demands for accountability and transparency from government organizations as well as high and fast responsiveness, this brought about a change in the organizational design paradigm. Organizational effectiveness related to the implementation of the main tasks and functions of the organization is no longer determined by the size of the organization, structure and large control range, but how successful the bureaucratic transformation that is adaptive to change is so fast in answering the tomorrow is today (Rahadian, 2019).

The 4.0 industrial revolution not only brings great benefits but also challenges. This article aims to look at the challenges and opportunities of governance in Indonesia in the era of industrial revolution 4.0.

B. LITERATURE REVIEW

The definition of Industry 4.0 varies. Merkel (2014) argues that Industry 4.0 is a comprehensive transformation of all aspects of production in the industry through the incorporation of digital and internet technology with conventional industries. Schlechtendahl, et al., (2015) emphasizes the definition of the element of the speed of information availability, namely an industrial environment in which all entities are always connected and able to share information with one another.

Kagermann et al., (2013), said that Industry 4.0 is the integration of Cyber-Physical System (CPS) and Internet of Things and Services (IoT and IoS) into industrial processes including manufacturing and logistics and other processes. CPS is a technology to combine the real world with cyberspace. This merger can be realized through integration between physical and computational processes (embedded computers and network technologies) in a closed-loop (Lee, 2008). Hermann, et al., (2015) added that Industry 4.0 is a term to refer to a set of value chain technologies and organizations in the form of smart factories, CPS, IoT, and IoS. The smart factory is a modular factory with CPS technology that monitors the physical process of production and then

displays it virtually and decentralizes decision making. Through IoT, CPS is able to communicate with each other and work together in real-time including with humans. IoS is all service applications that can be utilized by every stakeholder both internally and between organizations.

There are six Industrial design principles 4.0, namely interoperability, virtualization, decentralization, real-time capabilities, service-oriented and modular (Prasetyo & Sutopo, 2018). The four main components in industry 4.0 are the Cyber-physical system (the connection between the real world and the virtual world), the Internet of Things (IoT), Internet of Services (IoS) and Smart-factory (Roblek, Mesko & Krapez, 2016).

Based on some of the above explanations, Industry 4.0 can be interpreted as an industrial era where all entities within it can communicate in real-time at any time based on the use of internet and CPS technology to achieve the goal of achieving new values or optimizing existing values from every process in the industry.

Attempts to find out what aspects exist in Industry 4.0 are not enough just by understanding their definitions. Need a more comprehensive understanding of Industry 4.0 through the conceptual framework model. Kagermann et. al (2013) provides a recommendation for the Industry 4.0 framework model which is an embodiment of the integration of three aspects, namely horizontal integration, vertical integration and the application of CPS technology.

The first aspect is horizontal integration, which means integrating CPS technology into business strategies and corporate collaboration networks including partners, providers, customers, and other parties. While vertical integration involves how to apply CPS technology to the manufacturing/production systems that exist in the company so that it can be flexible and modular. The third aspect includes the application of CPS technology into the end to end value engineering chain. The value engineering chain involves the process of adding value from products ranging from the

process of design, production, manufacturing to service to product users. Integration of these aspects requires eight actions. The actions are (1) standardization, (2) complex system modeling, (3) providing communication network infrastructure, (4) guaranteeing safety and security, (5) organizational and work design, (6) human resource training, (7) certainty of the legal framework and (8) resource efficiency.

C. METHODS

This article is a type of conceptual article. Conceptual articles or commonly called non-research articles are the results of the author's thoughts on a problem as outlined in writing (Alam, 2015). The writing method used for the presentation of this conceptual article is the documentation method.

Documentation method is a technique of collecting data using documents. Documents can be in the form of writing, pictures, or monumental works from someone (Sugiyono, 2014). The sources used in writing this conceptual article are relevant conceptual articles, previous research results, regulations, policies, and theories from various textbooks.

D. RESULT AND DISCUSSION

1. The Urgency of Reforming Government Organizations in the Era of the Industrial Revolution 4.0

The dynamics of the development of business organization relations in surviving in the midst of the swift currents of globalization and the Industrial Revolution 4.0, need to be a lesson for government organizations to continue to transform into ideal forms in order to face threats and take advantage of opportunities, even though there are differences in mission, but organizational transformation government is an alternative that can be taken in order to realize a public service-oriented organization.

The transformation of government organizations needs to continue to be directed into changes from old designs that are less conducive to new designs

that are more conducive to continually developing innovation, managing innovation and managing risk and organizational integration in building collaboration and synergy. Organizational-level innovation makes growth and development of creativity not constrained by a strict hierarchy, this requires a change in organizational structure, the process of communication and coordination and eliminating structural barriers.

The organizational structure of the government which has been mechanistic, hierarchical, bureaucratic, rigid departmentalization, high and and centralized formalization needs to be constantly transformed towards organic organizations, which are characterized by free-flowing information, low formalization and cross-functional teams, in order to answer high uncertainties and the strategic environment of government organizations that are increasingly dynamic and of high complexity.

The transformation of government organizations must be characterized by the development of visionary leadership transformation that is measured at various levels of leadership in government organizations, this is needed to ensure that every innovation developed can provide value-added service quality, harmonize the vision and internal environment which is balanced with the ability to respond to environmental changes external moves fast in this era of the Industrial Revolution 4.0.

The transformation of government organizations is not merely downsizing and procedural, but more fundamental to work patterns, organizational culture and strategic values developed. The transformation of government organizations plays a strategic role in increasing national competitiveness, in institutional (institutional) approaches, 'traffic' of state administration from executives 'down' to Administrative Policy, where organizational transformation with work culture and governance is the decisive determinant its success.

Development of bureaucratic organization through planned and measurable transformation is needed in answering problem statements that

characterize the weaknesses of government organizations in general, which are deemed necessary to increase responsiveness, transparency, build accessible systems and mechanisms so as to allow for checks and balances. The transformation of government organizations is strongly influenced by leadership style, work culture, workforce work processes, and organizational structures developed so that they are active towards change and can increase the speed of bureaucracy in licensing, serve investments and improve national competitiveness.

The transformation of government organizations needs to continue to be followed by a change in mindset in the management of state finances, in various K/L of government organizations, by prioritizing value-for-money performance measurement, and increasing the principle of Performance-Based Budgeting that focuses on targets, outcomes and outputs, using technology in building leadership dashboards at various levels of leadership, so they can control from the planning and implementation stages of monitoring and reporting.

Industrial Revolution 4.0 actually provides a great opportunity to streamline the functions and roles of government organizations in carrying out their daily tasks, rapid IT development can be an opportunity in accelerating the implementation of e-governance, as a digitalization of data and information such as e-budgeting, e-project planning, system delivery, administration, e-controlling, e-reporting to e-money and other custom applications.

Strategic choice of IT utilization in various government organizations is very necessary for building mental self-driving, self-power, creativity, and innovation when machines are made to be smarter than humans, smart is not enough. Teamwork needs to be developed that promotes collaboration and synergy rather than competition, besides that there is a need for understanding in mindset and ways of acting in the face of the era of digitalization of technology on all fronts.

With the acceleration of the transformation of government organizations, it is hoped that this can be an answer to the demands of increased accountability and public transparency, while at the same time addressing the challenges faced in the course of national development. Optimism needs to continue to be intensified at various levels of leadership in government, in order to provide concrete contributions in accelerating the transformation of government organizations in their respective organizations, as a precondition for improving governance to support the achievement of the 2015-2019 national development strategy and make the transformation of government organizations wrong one pillar towards Indonesia World Class Government in 2025.

2. Opportunities and Challenges of Governance in the Era of the Industrial Revolution 4.0

The Indonesian government through the Ministry of Industry has prepared four strategic steps to deal with the industrial revolution 4.0 (www.kemenperin.go.id). First is to encourage the workforce in Indonesia to continue to learn and improve their skills to understand the use of the internet of things technology or integrate internet capabilities with production lines in the industry. The second step is the use of digital technology to spur productivity and competitiveness for small and medium industries (IKM) so they can penetrate the IKM export market. While the third step, namely the national industry must be able to use digital technology such as big data, autonomous robots, cybersecurity, cloud and augmented reality. The fourth step is technological innovation through the development of startups by facilitating the placement of business incubation. The four strategic steps are aimed at increasing national industry competitiveness both regionally and internationally. Along with this, innovative and adaptive steps must be taken by industry players to survive in the era of industrial revolution 4.0. Digital technology and the internet cannot escape the attention of industrial

management. All activities must be prepared for digital technology-based activities.

Indonesia has now entered the era of digital technology. The percentage of internet penetration in Indonesia shows a graph increasing from year to year. Data from the Ministry of Communication and Information of the Republic of Indonesia shows that the number of internet users in 2017 has reached 143.26 million people, equivalent to 54.68% of the total population of Indonesia. This number shows an increase of 10.56 million people from the survey results in 2016 (www.kominfo.go.id). From the data of the Indonesian Internet Service Providers Association (APJII) stated that 87.13% of internet users access social media services, whereas if measured from internet use in the economic field, 37.82% is used to find buying information and 32.19 % is used to buy online (Indonesian Internet User Penetration and Behavior Survey Results AJII, 2017). Meanwhile, based on the results of the Digital in Southeast Asia 2018 report published by We Are Social, the most widely used social media platform in Indonesia is Youtube, Facebook, and WhatsApp (www.wearesocial.com).

When viewed from the data, Indonesia has the potential for the development of technological infrastructure along with the increasing use of the internet in the context of implementing the government's strategic policies in dealing with industry 4.0. E-Government system is one of the government's efforts in implementing the use of computers, computer networks and information technology to run the government, especially public services is still very minimal. E-Government is in line with the Industrial Revolution 4.0. E-Government has many benefits in the democratic system that we currently implement, including increasing the speed of communication between the government, the public, the private sector, and coordination between internet-based institutions.

In addition to realizing transparent services, increasing accountability of the governance process, saving government budgets, and facilitating the flow of information that can be accessed openly to realize the ideals of good

governance and open government in the administration of government in Indonesia. So it is time for the government to seriously pay attention to and protect the people who are still not technologically savvy in order to survive and continue to grow following the guidance of the times.

E. CONCLUSION

The industrial revolution 4.0 will soon be faced by all countries in the world, including Indonesia. The era of Industrial Revolution 4.0 brought the consequence of increasing demands for accountability and transparency of government organizations and high and fast responsiveness, this brought about a change in the organizational design paradigm. Therefore, government organizations must carry out major reforms to be able to successfully carry out their duties and functions in the current era of the Industrial Revolution 4.0. The 4.0 industrial revolution not only brings great benefits but also challenges.

Technological innovation enables the redistribution and decentralization of power so that the government will increasingly face pressure to change the approach used to involve the public in policymaking. The series of technological changes and their impact on governance changes the pattern of government and citizen relations. The new perspective of the state is looking at citizens and vice versa will be needed. Furthermore, this will have implications for the need for proper governance, policy processes, and internal government transformation.

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